The FARMER AND MECHANIC

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Talks With Farmers.

By HARVIE JORDAN.

In the past ten years there has been a marked increase in the growth of the live stock industry throughout the South, as evidenced by the census of 1900 compared with those of 1890, the continual decrease in the cotton crop, together with a more general appreciation of the advantages of diversified agriculture, have not only caused a marked increase in the acreage devoted to forage crops, but a corresponding increase in the acreage of many other important hay and forage crops. This increase in these farm products has been brought about by changed conditions and necessities of the situation.

These conditions point to a still further increase in the annual production of these important cereals and a more decided change to the adoption of a first-class system of diversified agriculture throughout all the South Atlantic and Gulf States. While it is true that the largest yields of corn per acre are secured in the northwest, this is due largely to the methods of culture that exist in the two sections rather than a difference in soil and climatic conditions. On the contrary, the largest yield of corn per acre on record, 237 bushels, was grown in South Carolina, while the census of 1880 showed that the second largest yield per acre for any whole county in the United States was made in Jefferson county, Mississippi.

Which cotton commanded a high price Southern planters were willing to extend it for corn, because of the two, cotton was the more easily grown. The best land and attention was given to cotton and corn was relegated to a secondary place. Some farmers have always grown enough corn to supply the home demands of their farms, but a majority of them exhaust their supply of corn before the next crop was planted or before it could be harvested. It can not be denied that wherever the corn crop has been given the same care and attention of the cotton crop it has been raised equally as profitable and as satisfactory. The South naturally possesses superior advantages in growing corn to any other section of the country, and a market for its sale can be found here at equally remunerative prices as in the West. With the now rapidly growing tendency to raise pork, beef cattle and supplying our local markets with meat, the cultivation of corn is certain to become in the near future one of our leading farm industries in the South. Corn converted into fat beeves and hogs will sell for more profit to the farmer than continuing to plant his lands in cotton selling the product at a low price and buying his meat and bread. The problem has already been worked out to the satisfaction of every one who has tried it, and diversified agriculture is now the popular mode of farming.

SOIL AND PREPARATION.

Any land which will grow a good crop of cotton will also produce good corn, although some dry uplands which are deficient in humus may, when well fertilized, produce better crops of cotton than corn. Those lands which produce the best cotton weed and possess a fair amount of humus or rotten vegetable matter do best in corn. The rapid and luxuriant growth of corn requires a rich and well drained land deficient in vegetable matter will not retain moisture sufficiently to insure a large yield of corn. Humus is the most important element in the soil for the retention of moisture and a soil well supplied with that element rarely suffers from droughts.

Land cannot be made too rich for corn if well supplied with humus. The larger the ears will usually bear a large proportion to the stalk, hence a large heavy stalk will produce correspondingly heavy ears. Corn should usually follow a field planted in oats, rye or peas, so that the decaying vegetable matter or stubble turned under will aid in the retention of moisture during the long spring and summer. The small grains planted in the fall and receiving their growth during the winter and early spring rains, can best follow corn and cotton should follow corn. In the proper rotation would be corn, oats and peas the first year, corn second, cotton the third and small grain for the fourth. Many farmers are now adopting this plan, having only four fields of lands.

The land for corn should be deeply plowed early in the winter, by turning, in the early spring. The plowing should be closely followed with the harrow and all clods should be pulverized. If the crop is not then planted a second harrowing should be given just before planting to kill out the young weed seeds. There is no necessity for bedding when the land has been broadcast, but the rows should be bedded off, fertilized and planted as further labor. Thorough preparation of the soil shows its effects throughout the whole season in securing a better stand, less amount of labor required to cultivate the growing crop and a larger yield at harvest time. When the land may be bedded at the time it is harrowed down.

Corn should always be planted in the bed either broadcast or on the corn rows. Where cotton is the principal crop it is hard to rotate, of course corn follows cotton, but by planting cow peas a considerable amount of humus is returned in the soil every year. Burr clover is a splendid crop to occupy the land one year, either for pasturage or hay, and as far as possible every farmer should annually sow on some of his land Burr clover and winter vetch. Cow pears, Burr clover and the vetches are the best fertilizers for corn, and but little commercial fertilizers are needed for corn on lands where these crops are grown just preceding the crop of corn.

FERTILIZER FOR CORN.

Barnyard manure is next in value to the legumes for supplying nitrogen and humus for the corn crop, though it should be supplemented with phosphoric acid and potash. Too much barnyard manure cannot be used. If it is applied to the furrow, better results can be secured by drilling in with it at the same time from 100 to 200 pounds of phosphoric acid per acre, and the same amount of kainit, or if murite of potash is used, one-fourth of that amount. The manure and the chemicals can be nicely mixed by running a scooter furrow down the rows once or twice after application of all the ingredients.

If cotton seed are used, apply from 25 to 30 bushels per acre in the drill, using the same amount of phosphoric acid and potash as with barnyard manure. Cotton seed will make hard compact soils lighter and more easily worked while they furnish a considerable amount of humus and are more lasting in their effect upon the soil than cotton seed meal. On the other hand, cotton seed meal does best on light sandy soils. It makes such soils more compact and they are less easily affected by drought, which is an important item on the soils of the piney woods and Gulf regions. From 200 to 300 pounds of cotton seed meal, mixed with 150 pounds of phosphoric acid and the same weights in kainit as acid, may be used to good advantage per acre, or the relative amounts in smaller proportions. I am an advocate of fewer acres and higher fertilization. A good formula for corn can be found in the following, if the ingredients can be bought and the mixture done at home:

Acid phosphate, 1,000 pounds; muriate of potash, 55 pounds; cotton seed meal, 1,000 pounds.

This formula will analyze as follows: Available phosphoric acid, 7.00 per cent; potash, 1.30 per cent; nitrogen, 3.40 per cent.

We hope to see a much larger area of our Southern lands planted in corn the present year, and a corresponding decrease in cotton. Corn at $1.00 per bushel and meat at 12 cents per pound will break any farmer who persists in raising cotton to the detriment of his corncrib and smokehouse. Better by far to raise less cotton and have more to live on at home than raise large quantities of cotton and have nothing but debts and empty stomach at the end of the year.

HARVIE JORDAN.

A Woman Farmer's Triumph.

In these latter days women have not only entered more largely than ever before into business and professional life, but have achieved remarkable success in lines of effort that narrow-minded men until recently supposed them incapable of pursuing profitably. The old idea that women are not capable of coping with practical problems has received so many contradictions in actual experience that it may be fairly said to be effectively disposed of now.

Miss Minni Eshleman, of California, would be an interesting witness for these narrow theories of woman's possibilities to examine.

This woman bought in 1887 586 acres of land near Fresno, Cal. It had been hardly improved at all and its present condition is due entirely to the efforts of Miss Eshleman.

By persistent and ingenious effort she has brought the condition of all the land she originally purchased up to a very high standard, has increased her holdings largely and improved them to a like degree of excellence. She planted grapes, peaches, apricots, prunes and other fruits and her orchards have proved very profitable.

Some years ago she established a dairy and by keeping it up in the most approved style has made its products famous. One of her latest enterprises is a large cannery built and equipped out of the profits of her orchards and dairy. Besides she is going more largely every year into the raising of blooded cattle and horses.

She is credited with having discovered and perfected a new system of eliminating all disagreeable ordor of grass and other cow feed from her butter which is in steady demand at higher prices than are paid for the average article. It tokk the gold medal over all competitors at the California State fair two years ago and she has also won the gold medal for the farm showing the greatest variety and best average quality of products at a State fair. One of the trophies of this remarkable woman was bestowed for the excellence of the olive oiol, made on her own farm.

She has refused $175,000 for her property. It has not cost her one-sixth of that sum and its value is steadily increasing.

Among all the wonderful exhibits that California can make we doubt if any is results of her pretonshrdlu ..6 ..6 ..6..f more admirable than this woman and the results of her genius and industry.

THE AVERAGE WORKER FOR SOUTHERN DEVELOPMENT

A Composite Portrait with Composite Figures.

From the Manufacturers' Record's Twentieth Anniversary Number.

The record of the South's material progress during the past twenty years has been written in letters so large and so distinct that even the wayfarer, though a fool, may read as he runs, and may also understand. Accomplished facts are known, and their significance is fully comprehended. They are part of this country's history of great achievements. They speak for themselves.

They are not the result of haphazard fate. They mark attainment also in the face of fate. They tell what the South as a whole has accomplished. They reveal the forces which have made them possible—the men of the South. There have been leaders among these men, often unheralded, and, indeed, in come cases, hardly recognized by the masses. To print even the merest outline sketch of the lives of hundreds of these individuals who have been foremost in the movement for Southern development and prosperity would require space beyond the compass of this anniversary publication. To describe each of them in turn would be but to repeat a description of the typical American, sanely ambitious, broad-minded, courageous, alert, enterprising and full of spirit of initiative.

But a way has been found, it is believed, to give in a few words a number of facts thoroughly indicative of the character of these leaders in work for the upbuilding of the South, and, consequently, for the expansion of American interests. The Manufacturers' Record has obtained photographs of twenty Southern men, all of them born, living and laboring in the South since boyhood, and twelve of them still in the State of their nativity, whose manhood has been occupied in building and extending railroad systems, in cotton manufacturing, in conducting the iron and steel industries, in furthering commerce, in mining and in financing great developmenial undertakings—in fact, in exerting intelligently and persistently all the energies which have brought the South to its present gratifying status. These photographs were entrusted to an artist, who arranged them in three groups as the bases for three composite pictures, which were subsequently combined in one portrait, herewith presented. This may be taken as fairly picturing the average Southern leader in real things for the welfare of his people and his section.

The ages of these twenty gentlemen range from 36 to 70 years. Six of them have not reached the age of 45, and four of them are more than 60 years old, which shows that men who were in the flush of manhood when the South was wrecked, and who reasonably might have been expected to succumb to untoward circumstances, have been shoulder to shoulder in bringing order out of chaos and in setting the South upon the pathway of progress with men who know nothing of the war, except by hearsay, and that neither youth nor age exempts Southern men from what they know to be their duty.

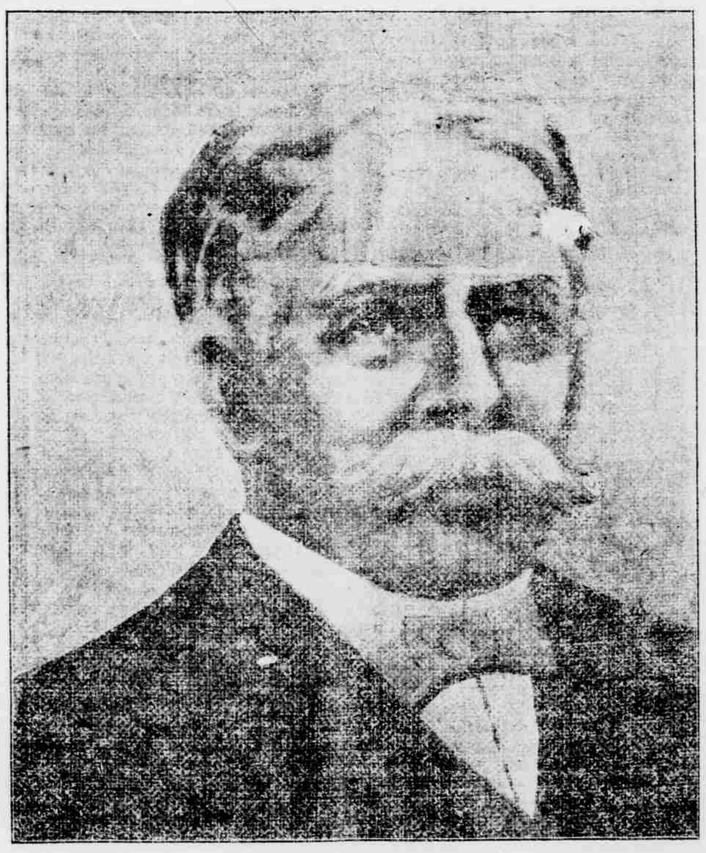
The average age of the twenty is 51 years and nine months—the prime of life. Here is the strong promise of greater successes. Their weights range from 138 to 216 pounds, the average being 175 pounds, and their heights range from five feet four and three-quarters inches to six feet one inch, the average being five feet ten inches. Weight and height guarantee longevity and physical endurance.

These men, in a majority of cases, have won their goal against tremendous odds. Some of them entered upon new careers with absolutely no equipment save brain power, good constitution and grit. Others, coming later upon the scene, have enjoyed the advantage of pioneer work done by their elders. Others, again, have cut out original courses for themselves. All have been inspired with sublime courage, stout hearts and steadfastness.

Their victories, though, have been made possible only through the direct and indirect seconding of their efforts on the part of the vast body of the population of the South. While individuals have gained the fame and the fortune which they well deserve, the whole body of the Southern people has shared in the material advance. Dealing in round numbers, and disregarding, as mutually corrective, the changes in schedules of the census dealing with average number of wage-earners and the value of products, it appears that the population has increased in twenty years from 16,300,000 to 23,500,000, or 44 per cent, while its productive capacity per capita, based upon the aggregate value of its agricultural, manufactured and mineral products, which increased from $1,045,000,000 in 1880 to $2,780,000,000 in 1900, or 166 per cent, has advanced from $64 to $118, or 84 per cent.

The increases in the value of products by classes have been: Mineral, from about $17,000,000 to $115,000,000, or 576 per cent; agricultural, from $571,000,000 to

(Continued on page 2.)



This is a composite portrait of twenty Southern men representing marked successes in the various lines of endeavor which have given the South material advancement.

It shows the average Southern manof affairs with the following physical qualities:

Age	51 years 9 months.
Height	5 feet 10 inches.
Weight	175 pounds.

This man typifies twenty years' increase in Southern productivity shown in the following figures:

	1880	1900	Increase per cent.
Population	16,300,000	23,500,000	44
Value of manufactured products	$457,000,000	$1,486,000,000	220
Value of mineral products	$ 17,000,000	$115,000,000	576
Value of agricultural products	$571,000,000	$1,200,000,000	110
Total value of all products	$1,045,000,000	$2,781,000,000	166
Wage-earners in manufactures	365,000	793,000	169
Total productivity per capita of population	$64	$118	84
Productivity in manufacturer per capita of wage-earners	$1,498	$1,848	23

Cotton Meal for Hogs.

By R. D. REDDING.

Several letters have been received making inquiry in regard to the expediency of feeding cotton seed meal to hogs. The scarcity and high price of corn has set farmers to thinking about a substitute, not only for feeding swine, but also horses and mules. A letter was published in this department (or on this page) some weeks ago from a farmer who stated that he had fed cotton meal to fattening hogs with safety and satisfaction. I remember the letter, but it was not edited by this writer and the name and address is not known to him.

To such inquiries I have replied that but few experiments in the use of cotton meal as a food for horses and mules had been published, but these few were favorable. At least no harm had resulted to the animals so fed. In reply to an inquiry from W. F. Brobston, I have advised farmers to make experiments in feeding the meal to one or two of their mules or horses, and appended to the reply several suggested rations.

But in regard to feeding cotton seed meal to hogs the reports from experiment station tests are almost uniformly unfavorable.

I append short quotations from several of these reports, taken from "Feeds and Feeding," by W. A. Henry:

"At the North Carolina station two calves getting from one to six ounces of cotton seed meal daily died after one month's feeding.

"The use of cotton seed and cotton seed meal for swine has been extensively investigated at the Texas experiment station by Curtis (Texas bulletin No. 21). One lot of pigs was fed corn in each trial, and those pigs all made excellent gains, with no deaths. On the other hand, many pigs fed on cotton seed or cotton meal sickened and died in from six to eight weeks after feeding began. The mortality of the pigs receiving cotton meal was 87 per cent; when roasted seed was fed it was 75 per cent., and for boiled seed, 25 per cent. In these experiments no trouble occurred until several weeks after feeding commenced, and it was observed that pigs escaping sickness and death for thirty days beyond the time when the trouble usually began were safe from the attack, though they were permanently stunted in growth.

"As a result of his statistics Curtis concludes:

"'There is no profit whatever in feeding cotton meal or cotton seed in any form into hogs of any age.'

"According to Curtis, the first sign of sickness appears in six to eight weeks after cotton seed meal is added to the ration, shown by a moping dullness, loss of appetite and tendency to lie apart. . . . The fatal cases all show spasmodic breathing, and in many cases the animal will turn in one direction only. . . . At death a quantity of bloody foam exudes from mouth and nostrils.'

"Conevin fed two 3-months'-old pigs 4.3 and 6.6 pounds, respectively, of brownish yellow Egyptian cotton seed meal, with fatal effect. A dog weighing fifty-three pounds was killed by subcutaneous injections of a watery extract from 1.7 pounds of cotton seed.

"All efforts to determine the poisonous principle in the cotton seed—if there really be one—have thus far proved futile, and the matter is still a mystery. The oil pressed from the seed has no poisonous properties.

"At the Virginia station (bulletin 109) pigs were fed all they would eat of a ration of five parts cottonseed meal, two parts bran and two parts beef scraps, giving a nutritive ratio of 1:2.35. All died."

The results of the foregoing tests are of such a decided character they should be enough to deter any farmer from feeding cotton seed or cotton seed meal in any form to hogs unless for the purpose of verifying or refuting the conclusions reached. Numerous cases may have occurred where fattening hogs have been fed partly on cotton seed, or meal, during the few last weeks of the fattening process, and were butchered before any ill-effects were manifest but in the light of the results reported it is doubtful if any benefit resulted from such feeding.

Some thirty years ago the writer was "short" on corn and "long" on "fattening" hogs. Equal weights of cotton seed and shelled corn were daily boiled until both were pretty thoroughly cooked, and fed to a pen of porkers for a period of three weeks. It was observed that the animals nosed out and consumed every grain of corn before they would purposely eat the cotton seed, and these were chewed and spat out. Although none were made sick, so far as known, the result was not satisfactory and the experiment was not repeated.

(Since the above was written I have received Bulletin No. 51 from Oklahoma experiment station (Stillwater, Okla.), in which are given the results of somewhat elaborate experiments in feeding a mixed grain ration of one-fifth cotton meal and four-fifths corn meal to "weanfed on wheat middlings with other lots fed on weath middlings and corn meal. The experiment was conducted for a period of several months. Three out of eight pigs fed on the mixture of four parts corn meal and one part cotton meal died in less than six weeks. The gentlemen conducting the experiment, Messrs. F. C. Burtis and J. S. Malone, were encouraged to believe that cotton meal may be fed under proper conditions and with certain precautions, with profit and with little danger. Their final conclusions as to this particular experiment are as follows:

"As a rule, if small pigs are shut up in a small pen and fed a grain mixture containing cotton seed meal to the amount of one-fifth to one-fourth, all the pigs will die inside of eight to ten weeks. But this experiment, and others elsewhere, show that there are exceptions to this. It looks as if a ration containing from one-fifth to one-tenth of cotton meal may be fed in light rations for an indefinite time, if the pigs are running on a green range."

They conclude as follows:

"(a) Dont' add more than one-fifth cotton seed meal to the grain ration.

"(b) Feed rather a light ration.

"(c) After feeding the ration containing the cottonseed meal for two or three weeks, drop the cotton seed meal for two or three weeks," and so on, alternating.

(d) "Let the pigs have range and green feed at the same time."

The results do no appear to be very encouraging. If the first and third precaution above given be adopted the amount of cotton meal for the whole period of feeding would be no more than one-tenth, hardly enough to justify any risk at all.

It may be remarked that there is some principle or quality, or whatever it may be, in cottonseed meal that is especially harmful to germinating seeds when the meal is applied in liberal quantity and in close contact with the seeds. I found this out to my cost in 1876 from using a fertilizer that was then coming into popular favor with farmers, and which contained a liberal portion of cotton meal. I applied a moderate quantity in the drills, directly in contact with such garden seeds as cabbage, turnips, beets, etc. The result was no "stand"; in fact, not one in ten of the seeds came up. Since then I have several times incautiously applied cotton meal in direct contact with oats and corn, with very damaging results.

It seems to be quite safe, or, at least, harmless to corn, oat and cotton seeds, and presumably to other seeds, to apply even a liberal quantity of cotton meal as a fertilizer, provided the latter is not concentrated near the seeds.

Three or four hundred pounds of cotton meal per acre, either alone or in combination with several hundred pounds or more of other fertilizing ingredients, applied in deep furrows 4 feet apart and bedded on, say, a week or ten days before planting, the beds then harrowed down and the corn planted, has been observed to greatly injure the "stand" and to impair the vitality or vigor of the plants that succeeded in making their way to the surface.

My theory is that the poisonous principle is developed in the meal during the process of decomposition that commences in a short time after it is deposited in the soil and which persists for a week or two. There may be the relation of actual identity between the cause of death to animals fed on the meal and the cause of the death of the plants fertilized with it.

It is a remarkable fact that thoroughly "rotten" cotton seed (whole) have no harmful effect on corn even when the grains of seed corn are actually covered with half a handful of the rotted seed, a practice once well nigh universal in the South, and still practiced by some farmers.

I have since thought that the disappointing results of bedding on green cotton seed, three or four weeks in advance of planting, as a manure for corn, which was my experience thirty years ago, might have been due to the poisonous principle that is developed during the decomposition of the seed in the soil. Had the seed been bedded on not less than four to six weeks before planting, the results might have been much more satisfactory. I thought at the time that the slow growth of the young corn plants for nearly two months after planting was due solely to the fact that the seed had not been buried in the soil sufficiently long for its nitrogen to become available. But it now appears probable that the cotton seed, not simply "did no good" during the month or two following the planting, but actually injured the plants and retarded their growth until about the first of June, when they became vigorous and healthy, and produced a fair but not satisfactory yield.

R. D. REDDING.

Do Animals Weep?

(New York Press.)

Lady Burton says that she has seen horses in the Syrian desert cry from thirst, a mule cry from pain of an injured foot, and a camel shed tears in streams. Gordon Cummings declares that he has observed tears in the eyes of a dying elephant, and Dr. Livingston used to have a pet ape which cried when the explorer would not take it in its arms. Wounded apes have died crying, and apes have wept over their young ones slain by hunters. Sea lions are said to cry over the loss of their young, and a giraffe which had been injured by the rifle of a hunter began to cry. Another explorer tells of a chimpanzee which had been trained to carry water jugs. It let one fall and break, and in its sorrow set a-crying. There seems to be little doubt that animals do sometimes cry from pain, sorrow or annoyance, but, as a rule, we cannot catch the watch dog in tears, or the family cat having a "good cry."